CSA Group

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(IEC 60745-1:2006, MOD)

A National Standard of Canada

(reaffirmed 2017)

Hand-held motor-operated electric tools — safety — part 1: General requirements

Standards Council of Canada
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Revision History

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CSA Group
CAN/CSA-C22.2 No. 60745-1-07
Third Edition
(IEC 60745-1:2006, MOD)

Underwriters Laboratories Inc.
UL 60745-1
Fourth Edition

Hand-Held Motor Operated Electric Tools — Safety — Part 1: General Requirements

JULY 31, 2007
Δ (Title page reprinted: April 30, 2020)

This national standard is based on publication IEC 60745-1, Fourth edition (2006).

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Δ Preface

This is the harmonized CSA Group and UL standard for Hand-Held Motor-Operated Electric Tools — Safety — Part 1: General Requirements. It is the third edition of CAN/CSA-C22.2 No. 60745-1, and the fourth edition of UL 60745-1. This harmonized standard has been jointly revised on April 30, 2020. For this purpose, CSA Group and UL are issuing revision pages dated April 30, 2020.

This harmonized standard is based on IEC Publication 60745-1: fourth edition Hand-Held Motor-Operated Electric Tools — Safety — Part 1: General Requirements, issued April 2006. IEC 60745-1 is copyrighted by the IEC.

This harmonized standard was prepared by CSA Group and Underwriters Laboratories Inc. (UL).

This standard is considered suitable for use for conformity assessment within the stated scope of the standard.

This standard was reviewed by the CSA Subcommittee on Safety of Hand-Held Motor-Operated Electric Tools, under the jurisdiction of the CSA Technical Committee on Consumer and Commercial Products and the CSA Strategic Steering Committee on Requirements for Electrical Safety, and has been formally approved by the CSA Technical Committee. This standard has been developed in compliance with Standards Council of Canada requirements for National Standards of Canada. It has been published as a National Standard of Canada by CSA Group.

Application of Standard

Where reference is made to a specific number of samples to be tested, the specified number is to be considered a minimum quantity.

Note: Although the intended primary application of this standard is stated in its scope, it is important to note that it remains the responsibility of the users of the standard to judge its suitability for their particular purpose.

Level of harmonization

This standard adopts the IEC text with national differences.

This standard is published as an equivalent standard for CSA Group and UL.

An equivalent standard is a standard that is substantially the same in technical content, except as follows: Technical national differences are allowed for codes and governmental regulations as well as those recognized as being in accordance with NAFTA Article 905, for example, because of fundamental climatic, geographical, technological, or infrastructural factors, scientific justification, or the level of protection that the country considers appropriate. Presentation is word for word except for editorial changes.

All national differences from the IEC text are included in the CSA Group and UL versions of the standard. While the technical content is the same in each organization's version, the format and presentation may differ.

Interpretations

The interpretation by the standards development organization of an identical or equivalent standard is based on the literal text to determine compliance with the standard in accordance with the procedural rules of the standards development organization. If more than one literal interpretation has been identified, a revision is to be proposed as soon as possible to each of the standards development organizations to more accurately reflect the intent.

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8.13DV	Marking and labelling systems		UL 969 *Marking and Labeling Systems*	CSA C22.2 No. 0.15 *Adhesive labels*
23.1.6	Temperature indicating and regulating equipment	IEC 60730-1 *Automatic electrical controls for household and similar use — Part 1: General requirements*	UL 60730-1A *Automatic Electrical Controls for Household and Similar Use, Part 1: General Requirements*	CSA C22.2 No. 24 *Temperature-indicating and regulating equipment*
8.13	Graphical symbols — Design principles	ISO 3864-2 *Graphical symbols — Safety colours and safety signs — Part 2: Design principles for product safety labels*		
8.1	Graphical symbols – Safety signs	ISO 7010 *Graphical symbols — Safety colours and safety signs — Safety signs used in workplaces and public areas*		
29.2	Plastics - Flammability	ISO 9772 *Cellular plastics — Determination of horizontal burning characteristics of small specimens subjected to a small flame*	UL 94 *Tests for Flammability of Plastic Materials for Parts in Devices and Appliances*	CAN/CSA-C22.2 No. 0.17 *Evaluation of properties of polymeric materials*

Note: *Additional regulatory requirements apply to equipment incorporating lasers, which are contained in the applicable national codes and regulations; for example, in Canada, the* Radiation Emitting Devices Regulations (C.R.C., c. 1370), *and in the US, the* Code of Federal Regulations (CFR), Title 21, Part 1040.

3.57DV D2 Modification: Add the following to the end of the definition:

as recommended in the instruction manual

8.1DV D1 Modification: Add the following:

– date of manufacture.

The date of manufacture may be a dating period not exceeding any one month. The date of manufacture may be abbreviated or may be in an established, accepted code or a code affirmed by the manufacturer.

8.1DV.1 D1 Addition: Add the following clause:

If a nameplate carries a required marking and is on a part that must be removed for normal servicing of the tool, the construction shall be such that the nameplate shall be returned to its proper location for the tool to be operable.

A cautionary marking shall be permanent and shall be located on a part permanently attached to the tool or on a part that cannot be removed without impairing the operation or the appearance of the tool.

A fold-over label attached to the power supply cord is acceptable.

Cautionary markings shall be used verbatim as stated. Optional cautionary statements may be added to the markings, as deemed necessary, by the manufacturer. Cautionary statements having the same signal word may be combined into one paragraph under one signal word. The order of statements shall be markings required by Part 1, markings required by the applicable Part 2 standard, and any optional markings.

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In cases where the words “danger”, “warning”, and “caution” appear together, the cautionary markings shall be in the order of severity, i.e., “danger, warning, and caution”.

8.1DV.2 D1 Modification: Add the following paragraph:

Markings in accordance with the marking clause of the latest edition of the product standard may be used.

8.12.1DV D1 Modification: Add the following paragraph:

An instruction manual in accordance with the instructions clause of the latest edition of the product standard may be used.

Δ **8.12.1DV.1 D2 Modification*:*** Add the following paragraph to Clause 8.12.1:

Clauses 8.12.1.1, 8.12.1.2, 8.12.2 (first paragraph and associated warnings only) may be replaced in their entirety with Clauses 8.14.1.1, 8.14.1.2, and 8.14.1.3 of UL 62841-1 or CAN/CSA C22.2 No. 62841-1. Partial substitution of the above-mentioned set of clauses between standards is not permitted.

8.13DV D1 Modification: Add the following:

Additional tests are required for adhesive labels to test the durability of the adhesive system.

Compliance is checked by inspection and, if the label is not in compliance with CSA C22.2 No. 0.15 and UL 969, the tests described in this clause shall be performed.

After being subjected to the conditions described below, a pressure-sensitive label or a label secured by cement or adhesive shall be considered to be of a permanent nature if immediately following removal from each test medium, and after being exposed to room temperature for 24 h following removal from each medium,

a) each sample demonstrates good adhesion and the edges are not curled;

b) the label resists defacement or removal as demonstrated by scraping across the test panel with a flat steel blade, held at right angles to the test panel. The blade shall be 0.8 mm thick and of any convenient width; and

c) the printing is legible and is not defaced by rubbing with thumb or finger pressure.

Label heating test

Three samples of the label applied to test surfaces as in the intended application shall be placed for 240 h in an oven maintained at the temperature specified in Table 8.13DV.

Table 8.13DV — Maximum surface temperatures

Maximum temperature during temperature test of surface to which applied, °C	Oven temperature, °C
60 or less	87
80 or less	105
100 or less	121
125 or less	150
150 or less	180
Over 150	[a]

[a] *A label that is applied to a surface attaining a temperature greater than* 150 °C *during the temperature test shall be heated at a temperature representative of the temperatures attained by the appliance during intended use and abnormal use.*

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24.4DV DR Modification: Replace Clause 24.4 with the following:

Supply cords shall be not lighter than Junior Hard service cord in accordance with the *National Electrical Code*, NFPA 70, and Hard Usage cord in accordance with the *Canadian Electrical Code, Part I,* CSA C22.1.

Attachment plugs and cords should be equal to or greater than the rating of the tool.

Table 6DV D1 Modification: Replace Table 6 with the following:

Table 6DV — Minimum cross-sectional area of supply cord

Rated current of the tool, A	Nominal cross-sectional area, AWG
Up to and including 10	18
Over 10 and up to and including 13	16
Over 13 and up to and including 18	14
Over 18 and up to and including 25	12

24.6DV DR Modification: Replace the first paragraph with the following:

For class I tools, the supply cord shall be provided with a green or green/yellow core; it shall be connected to the internal earthing terminal of the tool and to the earthing contact of the plug.

Table 8DV D1 Modification: Replace Table 8 with the following:

Table 8DV — Nominal cross-sectional area of conductors

Rated current of the tool, A	Nominal cross-sectional area, AWG
Up to and including 10	18
Over 10 and up to and including 13	16
Over 13 and up to and including 18	14
Over 18 and up to and including 25	12

26.1DV D1 Modification: Add the following sentence to the fifth paragraph of Clause 26.1:

Rotating motor components that have metal-to-metal bearing surfaces shall be considered to be electrically bonded to each other through the bearing surfaces for earthing purposes.

26.2DV D1 Modification: Add the following paragraphs:

Quick-connect terminals may be used to terminate or interconnect grounding and bonding conductors in sizes 18 – 14 AWG under the following conditions:

a) for wire sizes 18 – 16 AWG, the minimum connector and tab width shall be 2.80 mm (0.110 in); or

b) for wire size 14 AWG, the minimum connector and tab width shall be 6.35 mm (0.250 in).

Quick-connect tabs shall not be less than 0.5 mm (0.020 in) thick.

Multipin (friction type) insulated connectors shall not be used in equipment grounding paths unless they are shown to be acceptable for grounding use.

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